IN THE CLAIMS

This listing of Claims will replace all prior versions, and listings, of Claims in the application.

Claim 1 (Currently Amended): A distance relay apparatus comprising:

a sampling element which samples an amount of electricity of a voltage and a current, which are received from an object to be protected, at regular intervals;

an A/D converting element which converts the amount of electricity sampled by the sampling element into digital data;

a first directional relay element which receives the digital data obtained by the A/D converting element to perform computation to detect a fault, which occurs in the forward direction from an installing point of the relay apparatus, based on a computing equation;

a zone-1 distance relay element which receives the digital data to perform computation to detect a fault within a predetermined zone viewed from the installing point of the relay apparatus, based on a computing equation;

a fault detecting relay element which receives the digital data to perform computation to detect a fault within a zone that is narrower than ~~that of the zone-1 distance relay element~~ the predetermined zone in terms of data time length which is shorter than that used for the computation of the zone-1 distance relay element; and

a logic element which outputs a relay signal in accordance with a detecting operation of at least one of the zone-1 distance relay element and the fault detecting relay element and a detecting operation of the first directional relay element.

Claim 2 (Original): The distance relay apparatus according to Claim 1, wherein the first directional relay element, the zone-1 distance relay element and the fault detecting relay element receive the digital data, which is filtered by digital filters, and perform computation to detect a fault, and time required for filtering the digital data in the digital filter connected to the fault detecting relay element is shorter than time required for filtering the digital data in the digital filter connected to the first directional relay element and the zone-1 distance relay element.

Claim 3 (Original): The distance relay apparatus according to Claim 1, wherein the first directional relay element, the zone-1 distance relay element and the fault detecting relay element receive the digital data, which is filtered by digital filters, and perform computation to detect a fault, and the data time length used for the computation in the fault detecting relay element is shorter than the data time length used for the computation in the first directional relay element and the zone-1 distance relay element.

Claim 4 (Original): The distance relay apparatus according to Claim 1, further comprising a second directional relay element having a setting value that is larger than that of the first directional relay element, and

wherein the logic element outputs the relay signal in one of a case where both the second directional relay element and the fault detecting relay element are operated and a case where both the first directional relay element and the zone-1 distance relay element are operated.

Claim 5 (Original): The distance relay apparatus according to Claim 2, further comprising a second directional relay element having a setting value that is larger than that of the first directional relay element, and

wherein the logic element outputs the relay signal in one of a case where both the second directional relay element and the fault detecting relay element are operated and a case where both the first directional relay element and the zone-1 distance relay element are operated.

Claim 6 (Original): The distance relay apparatus according to Claim 3, further comprising a second directional relay element having a setting value that is larger than that of the first directional relay element, and

wherein the logic element outputs the relay signal in one of a case where both the second directional relay element and the fault detecting relay element are operated and a case where both the first directional relay element and the zone-1 distance relay element are operated.

Claim 7 (Original): The distance relay apparatus according to Claim 1, wherein the fault detecting relay element includes a mho relay having a setting value that is smaller than a distance setting value of the zone-1 distance relay element.

Claim 8 (Original): The distance relay apparatus according to Claim 2, wherein the fault detecting relay element includes a mho relay having a setting value that is smaller than a distance setting value of the zone-1 distance relay element.

Claim 9 (Original): The distance relay apparatus according to Claim 3, wherein the fault detecting relay element includes a mho relay having a setting value that is smaller than a distance setting value of the zone-1 distance relay element.

Claim 10 (Original): The distance relay apparatus according to Claim 4, wherein the fault detecting relay element includes a mho relay having a setting value that is smaller than a distance setting value of the zone-1 distance relay element.

Claim 11 (Original): The distance relay apparatus according to Claim 1, wherein the fault detecting relay element includes a reactance relay having a setting value that is smaller than a distance setting value of the zone-1 distance relay element.

Claim 12 (Original): The distance relay apparatus according to Claim 2, wherein the fault detecting relay element includes a reactance relay having a setting value that is smaller than a distance setting value of the zone-1 distance relay element.

Claim 13 (Original): The distance relay apparatus according to Claim 3, wherein the fault detecting relay element includes a reactance relay having a setting value that is smaller than a distance setting value of the zone-1 distance relay element.

Claim 14 (Original): The distance relay apparatus according to Claim 4, wherein the fault detecting relay element includes a reactance relay having a setting value that is smaller than a distance setting value of the zone-1 distance relay element.

Claim 15 (Original): The distance relay apparatus according to Claim 1, wherein the fault detecting relay element includes an undervoltage relay which detects that a voltage becomes not higher than a predetermined level.

Claim 16 (Original): The distance relay apparatus according to Claim 2, wherein the fault detecting relay element includes an undervoltage relay which detects that a voltage becomes not higher than a predetermined level.

Claim 17 (Original): The distance relay apparatus according to Claim 3, wherein the fault detecting relay element includes an undervoltage relay which detects that a voltage becomes not higher than a predetermined level.

Claim 18 (Original): The distance relay apparatus according to Claim 4, wherein the fault detecting relay element includes an undervoltage relay which detects that a voltage becomes not higher than a predetermined level.

Claim 19 (Original): The distance relay apparatus according to Claim 1, wherein the fault detecting relay element includes an overcurrent relay which detects that a current becomes not lower than a predetermined level.

Claim 20 (Original): The distance relay apparatus according to Claim 2, wherein the fault detecting relay element includes an overcurrent relay which detects that a current becomes not lower than a predetermined level.

Claim 21 (Original): The distance relay apparatus according to Claim 3, wherein the fault detecting relay element includes an overcurrent relay which detects that a current becomes not lower than a predetermined level.

Claim 22 (Original): The distance relay apparatus according to Claim 4, wherein the fault detecting relay element includes an overcurrent relay which detects that a current becomes not lower than a predetermined level.

Claim 23 (Original): The distance relay apparatus according to Claim 1, wherein the fault detecting relay element includes an impedance relay which obtains an impedance from the voltage and the current by computation and detects that the impedance becomes not higher than a predetermined level.

Claim 24 (Original): The distance relay apparatus according to Claim 2, wherein the fault detecting relay element includes an impedance relay which obtains an impedance from the voltage and the current by computation and detects that the impedance becomes not higher than a predetermined level.

Claim 25 (Original): The distance relay apparatus according to Claim 3, wherein the fault detecting relay element includes an impedance relay which obtains an impedance from the voltage and the current by computation and detects that the impedance becomes not higher than a predetermined level.

Claim 26 (Original): The distance relay apparatus according to Claim 4, wherein the fault detecting relay element includes an impedance relay which obtains an impedance from the voltage and the current by computation and detects that the impedance becomes not higher than a predetermined level.